REMARKS/ARGUMENTS

Claims 1-26 are pending. Claims 1-11 have been revised for clarity. The lower limit in Claim 2 has been revised from "200" to –300--; support is found in the specification on page 11, lines 16-17. New Claims 12-23 find support in the original claims. Claim 24 finds support in the specification on page 22, lines 4-7 and 21-24. Claim 25 finds support in the specification on page 15, line 27- page 16, line 4; Claim 26 finds support on page 12, line 26-page 13, line 4. Accordingly, the Applicants believe that no new matter has been introduced.

Objection—Specification

The specification was objected to as not providing adequate antecedent basis for the subject matter of Claim 2. Claim 2 is directed to a compound of formula (I) having a molecular weight of 300 to 1,000 and a fluorine content of 30 to 86%. The Applicants note that Claim 2 forms part of the original disclosure. However, support for this claim is also found in the specification at page 11, lines 14-18. Accordingly, this objection may be withdrawn.

Rejection—35 U.S.C. 112, second paragraph

Claims 6-9 were rejected under 35 U.S.C. 112, second paragraph, as lacking adequate description. This rejection is moot in view of the amendment of Claim 6.

Rejection—35 U.S.C. 102

Claim 11 was rejected under 35 U.S.C. 102(b) as being anticipated by Oharu et al., JP 02311438. This rejection is moot in view of the amendment of Claim 11.

Rejection—35 U.S.C. 103

Claims 1-11 were rejected under 35 U.S.C. 103(a) as being unpatentable over Moore, U.S. Patent No. 5,466,877 alone, or in view of Bierschenk et al., U.S. Patent 5,093,432. Moore alone does not teach all the elements of the invention, because it does not disclose compounds of formula (I) which comprise vicinyl ("vic") chlorine, see e.g., col. 2, line 54, which refers to a class of perfluoroesters. Col. 1, lines 43-44, refer to Bierschenk for use of hydrocarbon carboxylic acid esters as starting compounds in fluorination processes, but do not specifically describe or refer to fluorination of chlorine-containing compounds under mild conditions for the purpose of retaining the vicinyl chlorine atoms.

Bierschenk, col. 2, lines 27-33, disclose that chlorinated hydrocarbons can be converted to perfluorinated materials with essentially all of the chlorine being retained in the original positions by using liquid phase fluorination, see col. 1, line 58-et seq. Col. 9, lines 25-46 disclose the preparation of chlorofluorocarbons by the reaction of chlorinated organic compounds with fluorine gas. However, there is no suggestion for a fluorination process that uses a vicinyl-dichloro compound (a compound having chlorines on adjacent carbon atoms) and which produces a fluorinated vicinyl-dichloro product.

Bierschenk, in fact, suggests that vicinyl chloro compounds differ from other types of chlorinated hydrocarbons. For instance, col. 9 indicates that telomers of fluorinated vinyl chloride, which have chlorine on every other carbon atom (i.e., telomers that are not vicinyl chlorides) are more stable than telomers produced by polymerizing chlorotrifluoroethylene, which have a random structure, see col. 9, lines 37-38 and 44-46. Thus, based on differences in stability, Bierschenk suggests that carbon compounds with vicinyl chloride substituents are distinguishable from similar compounds that do not have vicinyl chloro groups.

Moreover, new Claims 24-26 further distinguish the invention from Moore. Claim 24 requires decomposition of the ester bond in the absence of a solvent. Examples 1-6, 2-4, 5-3

and 6-4 demonstrate that the decomposition of the ester bond of compound (II) proceeds in the absence of a solvent and provides a good yield of compound (III). Decomposition of the ester bond in the absence of solvent is advantageous from the viewpoint of volume efficiency and ease of post-treatment. On the other hand, in Moore, when a solid nucleophile such as NaF is used in the dissociation of perfluorinated esters, the solid nucleophile has to be used in combination with a solvent (col. 4, lines 20-24), and Comparative Example 1 of Moore shows that "higher molecular weight perfluorinated esters. . .may not cleave upon contact with solid, non-hydroxylic nucleophile in the absence of solvent (col. 7, lines 35-40).

Claim 25 requires that the reaction temperature for the fluorination reaction range from -50 to +100°C. This temperature range has the effect of preventing abstraction and migration of the chlorine atom. Since Moore relates to production of a perfluorinated carboxylic acid fluoride and has nothing to do with a vic-dichloro acid fluoride compound, neither the specific temperature range of -50 to +100°C, nor the effect of using this specific temperature range is conceivable from Moore.

Claim 26 requires that the amount of fluorine gas used for fluorination ranges for 5 to 30 vol.%. When the amount of fluorine gas is in this range, it is possible to prevent abstraction and migration of the chlorine atoms. Since Moore relates to production of a perfluorinated carboxylic acid fluoride and has nothing to do with a vic-dichloro acid fluoride compound, neither the specific fluorine gas range from 5 to 30 vol.%, nor the effect of using the specific fluorine gas range is suggested by Moore.

The Applicants therefore respectfully request that this rejection be withdrawn, because (1) the cited art does not teach the vicinyl chloride substrates (Compound I) of the claimed process, (2) suggest or provide a reasonable expectation of success for a process for fluorinating vicinyl chlorides, (3) teach the fluorinated vicinyl chloride compound products (Compound III) of the present invention, or disclose or suggest the limitations required by dependent claims, such as Claims 24-26.

CONCLUSION

In view of the above amendments and remarks, the Applicants respectfully submit that this application is now in condition for allowance. Early notification to that effect is earnestly solicited.

Respectfully submitted,

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